

## **Tank Mixtures of Outlook or Nortron in Combination with Roundup for Late-Season Weed Control in Sugarbeets.**

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A field study was initiated near Mitchell, Nebraska to compare the effectiveness of Outlook or Nortron for weed control in sugarbeets. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 45 feet long and were located on a sandy loam soil with a pH of 8 and organic matter content of 1%. Sugarbeet 'BTS66RR50' were planted on April 22. The plot area was irrigated on April 25 for seed germination and early season plant growth. Postemergence Roundup Original Max application began on May 30 when sugarbeets were in the 2 true-leaf growth stage. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 36-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions, rainfall following herbicide application, and growth stages at the time of herbicide application are given in Table 1.

Nortron applied postemergence when sugarbeets were in the 2 true-leaf growth stage at rates ranging from 0.49 to 1.49 lb/acre caused early season injury (Table 2). Delaying Nortron application until sugarbeets reached the 4 to 6 true-leaf growth stages resulted in a reduction in crop injury. No significant crop injury was observed from postemergence applications of Outlook.

Weed density in the plot area was moderate and consisted of common lambsquarters, hairy nightshade, toothed spurge, and kochia at plant densities of 197, 153, 72, and 25 plants/247 sq ft, respectively. Three applications of Roundup Original Max alone or in combination with Outlook provided excellent early season weed control (Table 2). Two treatments with Roundup Original Max did not provide adequate toothed spurge control. A combination of Roundup Original Max at 0.94 lb/acre with Nortron at 1.49 lb/acre applied when sugarbeets were in the 2 true-leaf growth stage resulted in antagonism of glyphosate and toothed spurge and common lambsquarters control declined. If the Nortron rate was reduced to 0.49 lb/acre antagonism was not observed.

Table 1. Environmental conditions at the time of herbicide application.

Date	Air Temperature	Humidity	Wind speed & direction	Time of day	Sugarbeet growth stage	Weed Heights			
	(F)	(%)	(mph)			Colq	Hans	Tosp	Kocz
						----- (inches) -----			
May 30	66	44	10 W	9:00 am	2 TL	2	1	1	2
June 9	65	28	4 SW	11:00 am	4 TL	3	3	2	3
June 17	65	77	2 SE	10:00 am	6 TL	6	4	4	4
July 2	73	51	4 NE	11:00 am	10 TL	28	11	10	24

Rainfall before and after herbicide application

Date	Amount	Date	Amount	Date	Amount
(inches)		(inches)		(inches)	
May 26	0.15	June 15	0.08	June 28	0.02
June 1	0.06	June 16	0.17	July 22	0.83
June 4	0.52	June 20	0.47		
June 5	0.13	June 26	0.02		



Herbicide treatment <sup>1</sup>	Rate (lb/acre)	Time of application <sup>2</sup>	Sugarbeet						Percent weed control 7/17 <sup>4</sup>				
			Visual Injury <sup>3</sup>		Stand	Root Yield		SLM	Colq	Hans	Tosp	Kocz	Avg
			6/18	7/9	7/17	10/15	Sucrose						
Roundup Original Max + AMS	0.94	2 TL	0	0	21582	30	14.6	1.6	96	99	79	97	93
Roundup Original Max + AMS	0.94	6TL											
Roundup Original Max + Nortron + AMS	0.94 + 0.49	2 TL	4	0	18216	27.2	14.3	1.7	97	98	85	99	95
Roundup Original Max + AMS	0.94	6TL											
Roundup Original Max + Nortron + AMS	0.94 + 1.49	2 TL	9	1	18612	26	14.5	1.7	94	99	43	99	84
Roundup Original Max + AMS	0.94	6TL											
Roundup Original Max + AMS	0.94	2 TL	0	0	18084	29.2	15.1	1.7	98	99	89	99	96
Roundup Original Max + Nortron + AMS	0.94 + 0.49	6TL											
Roundup Original Max + AMS	0.94	2 TL	0	0	19536	25.8	14.8	1.6	99	99	93	99	98
Roundup Original Max + Nortron + AMS	0.94 + 1.49	6TL											
Roundup Original Max + Nortron + AMS	.94 + 0.49	2 TL	10	4	18744	26.6	15.4	1.6	99	99	91	99	97
Roundup Original Max + Nortron + AMS	0.94 + 0.49	6TL											
LSD (P=.05)	—	—	6	3	NS	5	NS	NS	4	1	18	3	5

<sup>1</sup> Spray additives were combined with the spray solution at the following rate: ammonium sulfate (AMS) at 17lbs/100 gal and surfactant X77 at 0.25%.

<sup>2</sup> Time of application: 2 true-leaves (2 TL), 4 true-leaves (4 TL), 6 true-leaves (6 TL), and 10 true-leaves (10 TL).

<sup>3</sup> Visual crop injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

<sup>4</sup> Percent weed control calculated from weed counts taken on July 17. Weed abbreviations: common lambsquarters (Colq), hairy nightshade (Hans), toothed spurge (Tosp), and kochia (Kocz).